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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

TRAIL, ALLYSON NEEL

ART UNIT	PAPER NUMBER
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2876

DATE MAILED: 10/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/837,535

Applicant(s)

CHECK ET AL.

Examiner

Allyson N Trail

Art Unit

2876

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 102-133 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 102-107, 109, 112-114, 119, 121, 122 and 125-127 is/are rejected.
- 7) ☒ Claim(s) 117 and 129-133 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 7/16/2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Amendment

1. Receipt is acknowledged of the Amendment filed July 16, 2004.

Remarks

2. Claims 102-107, 109, 112-114, 117, 119, 121, 122, 125-127, and 129-133 are currently pending.

Claim Objections

3. Claims 112 and 129 are objected to because of the following informalities:

Re claim 112, line 1: claim 112 depends on claim 111, however claim 111 has been cancelled.

Re claim 112, lines 1 and 2: replace "said plurality of multi-faceted volume holographic elements" with --a plurality of multi-faceted volume holographic elements--.

Re claim 129, line 2: replace "said second window" with either --said second portion-- or --said side window--.

Re claim 129, lines 3 and 4: replace "said plurality of holographic optical elements" with --a plurality of holographic optical elements--.

Appropriate correction is required.

Double Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

Art Unit: 2876

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 102-105, and 112-114 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 2, and 4 of U.S. Patent No. (6,758,402) hereinafter '402 in view of Nickl (4,652,732).

6. Claim 1 of '402 teaches the following in regards to claims 102, 104, 105, and 112 of the current application:

Regarding claims 102 and 104:

A laser scanning system comprising a first and second portion. The first portion is a bottom scanning window and the second portion is a side scanning window.

Claim 1 of '402 further teaches a plurality of laser scanning station, wherein each laser scanning station comprises a light beam source and corresponding groups of light bending mirrors that cooperate with a plurality of light directing elements to produce laser scanning planes that are projected within a 3-D scanning volume disposed above the bottom window and adjacent the side window. The laser scanning stations are disposed within the first portion of the housing and produce a first set of laser scanning planes passing through the bottom window. Additionally, a second plurality of laser scanning planes pass through the side window.

Regarding claim 105:

Each laser scanning station has at least one laser beam folding mirror.

Regarding claim 112:

Claim 1 of '402 additionally teaches a holographic scanning disc supporting a plurality of holographic scanning facets.

Claims 4 and 5 of '402 teach the following in regards to claims 113 and 114 of the current application:

Regarding claim 113:

Claims 4 and 5 of '402 teach certain bending mirrors, which cooperate with light directing elements that have high elevation angle characteristics and other bending mirrors, which cooperate with light directing elements that have low elevation angle characteristics.

Regarding claim 114:

Claim 4 of '402 teaches left and right skew angle characteristics so as to produce a plurality of pairs of quasi-orthogonal laser scanning planes.

'402 fails to specifically teach a housing and furthermore fails to teach the housing having a depth of less than 5 and 3.5 inches.

Nickl teaches the following in regards to claims 102-105, and 112-114

Figure 3 shows a scanner 10, which includes a housing. The depth of a first portion of the housing is 2.6 inches (see column 6, lines 43-44).

In view of Nickl's teachings it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the scanner be enclosed by a housing. Additionally, having a portion of the housing include a depth of less than 5 or 3.5 inches would have been obvious to one of ordinary skill in the art at the time the

invention was made. Scanners inherently include housings. Although the '402 reference fails to disclose a housing, a housing is necessary in order to enclose all of the components included in the scanning device. All of the laser scanning stations disclosed by '402 must be contained in a housing. One would be motivated to have the depth of the housing be small, (less than 5 or 3.5 inches) in order to keep the housing small and compact.

7. Claims 106 and 107 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of '402 in combination with Nickl (4,652,732) and in further view of Swartz et al (4,593,186).

The teachings of claim 1 of '402 combined with the teachings of Nickl (4,652,732) are discussed above. The combination however fails to specifically teach the size of the housing.

Swartz et al teach the following in regards to claims 106 and 107:

"In accordance with one feature of this invention, the light source means, optic means, scanning means, sensor means and signal processing means are all mounted within the housing whose volume is less than about 100 cubic inches." (Col. 4, lines 12-16).

In view of Swartz et al's teachings it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the volume of the housing be less than 1650 cubic inches. As stated above, scanners inherently include housings. Housings are necessary in order to enclose all of the components included in the

Art Unit: 2876

scanning device. One would be motivated to have the volume of the housing be small, (less than 1650 cubic inches) in order to keep the housing small and compact.

8. Claim 109 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of '402 in combination with Nickl (4,652,732) and in further view of Salatto, Jr. et al (5,945,658).

The teachings of claim 1 of '402 combined with the teachings of Nickl (4,652,732) are discussed above. The combination however fails to specifically teach the size of the bar code, which has a width on the order of 0.006 inches wide.

Salatto, Jr. et al teach the following in regards to claim 109:

"As indicated by FIG. 1, the resolution attainable for bar code patterns ranges from a 0.005 inch bar width for bar code patterns at a very close range to a 0.050 inch bar width for bar code patterns at a distant range." (Col. 4, lines 12-16).

In view of Salatto, Jr. et al's teaching it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the scanner read a bar code with a width on the order of 0.006 inches. One would be motivated to have a scanner capable of reading small bar code in order to be more versatile and have a wider use.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

Art Unit: 2876

applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claim 102, 104, 105, 119, 121, and 125-127 are rejected under 35 U.S.C. 102(e) as being anticipate by Ohkana et al (6,728,015).

Ohkana et al teach the following in regards to claims 102, 104, 105, 119 and 121:

Figure 2A shows a scanner 1. The scanner includes a bottom window 5 and a side window 4. Figure 3 shows first and second laser scanning stations. Figure 3 also shows a bending mirror 30 and also shows a group of other mirrors used for bending the laser beam. The figure additionally shows a plurality of light directing elements used to produce laser scanning planes that are projected within a 3-D scanning volume disposed between the bottom and side windows. The bottom window 5 has a width of 5 inches (see col. 22, lines 4-5).

Ohkana et al teach the following in regards to claims 119 and 125-127:

"In FIG. 3, reference numeral 28 denotes a first detector which detects a beam reflected by the bar code and is incident upon the bar code reader 1 through the bottom window 5. The light-receiving surface of the first detector 28 is faced to a direction opposite to the side scanner portion 2. Reference numeral 29 denotes a second detector which detects a beam reflected by the bar code and is incident upon the bar code reader 1 through the side window 4. The light-receiving surface of the second detector 29 is tilted downward. The beams reflected by the bar code and received by the first and second detectors 28 and 29 are electrically processed, converted into

Art Unit: 2876

binary signals, decoded by a decoding circuit that is not shown, and are output to an external unit (e.g., POS terminal)." (Col. 11, lines 1-14).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claim 103 is rejected under 35 U.S.C. 103(a) as being unpatentable over in view Ohkana et al (6,839,015) in view of Nickl (4,652,732).

Ohkana et al's teachings are discussed above. Ohkana et al fails to teach the depth of the housing being less than 3.5 inches.

Nickl teaches the following in regards to claim 103:

Figure 3 shows a scanner 10, which includes a housing. The depth of a first portion of the housing is 2.6 inches (see column 6, lines 43-44).

In view of Nickl's teachings it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a portion of the housing include a depth of less than 3.5 inches. One would be motivated to have the depth of the housing be small, (less than 3.5 inches) in order to keep the housing small and compact.

13. Claims 106 and 107 are rejected under 35 U.S.C. 103(a) as being unpatentable over in view Ohkana et al (6,839,015) in combination with Nickl (4,652,732) and in further view of Swartz et al (4,593,186).

The teachings of Ohkana et al combined with the teachings of Nickl (4,652,732) are discussed above. The combination however fails to specifically teach the size of the housing.

Swartz et al teach the following in regards to claims 106 and 107:

"In accordance with one feature of this invention, the light source means, optic means, scanning means, sensor means and signal processing means are all mounted within the housing whose volume is less than about 100 cubic inches." (Col. 4, lines 12-16).

In view of Swartz et al's teachings it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the volume of the housing be less than 1650 cubic inches. As stated above, scanners inherently include housings. Housings are necessary in order to enclose all of the components included in the scanning device. One would be motivated to have the volume of the housing be small, (less than 1650 cubic inches) in order to keep the housing small and compact.

14. Claim 109 is rejected under 35 U.S.C. 103(a) as being unpatentable over in view Ohkana et al (6,839,015) in combination with Nickl (4,652,732) and in further view of Salatto, Jr. et al (5,945,658).

The teachings of Ohkana et al combined with the teachings of Nickl (4,652,732) are discussed above. The combination however fails to specifically teach the size of the bar code, which has a width on the order of 0.006 inches wide.

Salatto, Jr. et al teach the following in regards to claim 109:

"As indicated by FIG. 1, the resolution attainable for bar code patterns ranges from a 0.005 inch bar width for bar code patterns at a very close range to a 0.050 inch bar width for bar code patterns at a distant range." (Col. 4, lines 12-16).

In view of Salatto, Jr. et al's teaching it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the scanner read a bar code with a width on the order of 0.006 inches. One would be motivated to have a scanner capable of reading small bar code in order to be more versatile and have a wider use.

15. Claim 112 is rejected under 35 U.S.C. 103(a) as being unpatentable over in view of Ohkana et al (6,839,015) in combination with Nickl (4,652,732) and in further view of Bobba et al (2003/0201326).

The teachings of Ohkana et al combined with the teachings of Nickl (4,652,732) are discussed above. The combination however fails to specifically teach multi-faceted volume holographic elements, which are supported by a scanning disc.

Bobba et al teach the following in regards to claim 112:

Figure 158 shows a schematic diagram illustrating a scanning disc, which supports holographic elements.

In view of Bobba et al's teaching it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a scanning disc, which supports holographic elements. One would be motivated to include such a disc in order to produce an omnidirectional scanning pattern within a well-defined 3-D scanning volume during each revolution of the disc.

16. Claim 122 is rejected under 35 U.S.C. 103(a) as being unpatentable over in view Ohkana et al (6,839,015) in view of Cheng (4,224,509).

Ohkana et al's teachings are discussed above. Ohkana et al fails to teach a spectral filter. Cheng teaches the following in regards to claim 122:

"As shown in FIG. 5, each of the light beams 75 and 76 when diffracted by the hologram 88 will be deflected and redirected by mirrors 92 and 94, respectively, to the target area to form the grid pattern 90 (FIG. 7) through which a bar code printed on the label 32 will move. The light beams will be reflected from the bar code surface of the label 32 and being retrodirective will be deflected by the mirror 80 towards a collecting lens 96 in the form of diffused light signals 95, the lens 96 focusing the diffused light signals onto a solid state detector 98 which transmits the detected light signals in the form of electrical signals to the digitizer 48 (FIG. 2). The mirror 80 also acts as a spectral filter for the diffused light signals 95 for eliminating background noise such as room light." (Col. 5, lines 14-28).

In view of Cheng's teaching it would have been obvious to one of ordinary skill in the art at the time the invention was made to use spectral filter taught by Cheng in the scanning system taught by Ohkana et al. One would be motivated to include such a spectral filter in order to filter out unwanted light, which may affect the scanning accuracy.

Allowable Subject Matter

17. Claims 129-133 are objected to as being dependent upon a rejected base claim and also claim 129 is objected to above, but would be allowable if rewritten in

Art Unit: 2876

independent form and overcoming the above objection, including all of the limitations of the base claim and any intervening claims.

The following is an examiner's for allowance: The combination of '402 with Nickl (4,652,732) teaches a laser scanning system comprising a housing having a first portion, which includes a bottom window and second portion, which includes a side window. The combination also teaches a plurality of laser scanning stations disposed within the housing, wherein each of the laser scanning station comprises a light beam source and corresponding groups of light bending mirrors disposed within the housing that cooperate with a plurality of light directing elements to produce laser scanning planes that are projected within a 3-D scanning volume disposed above the bottom window and adjacent the side window. The combination of '402 and other prior art additionally teach many of the claimed limitations disclosed in the pending claims. The above identified prior art of record however, taken alone, or in combination with any other prior art, fails to teach or fairly suggest the specific features of claims 113, 114, 117, and 129-133 of the present claimed invention. The various characteristics of the light directing elements are not disclosed in prior art. Specifically, prior art fails to teach the bending mirrors cooperating with light directing elements that have high and low elevations angle characteristics and further the light directing elements having left and right skew angle characteristics. Also not disclosed in the prior art includes the light bending mirrors having a different number of vertices than do other light bending mirrors. Additionally, the laser scanning system of prior art fails to teach the system, wherein a given laser scanning station produces scan lines that pass through the

second window, wherein the laser scanning station comprises a collimating lens that cooperates with the plurality of holographic optical elements to increase focal distance of scan lines passing through the second window, thereby allowing the plurality of holographic optical elements to be used in producing scan lines that pass through both first and second windows. Moreover, one of ordinary skill in the art would not have been motivated to come to the claimed invention.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Koenck (6,681,994), Swift et al (6,216,951), Knowles et al (6,098,885), Chi et al (5,043,563), Amundsen et al (2001/0000615), and Broockman et al (4,800,256).

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to *Allyson N. Trail* whose telephone number is (571) 272-2406. The examiner can normally be reached between the hours of 7:30AM to 4:00PM Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Lee, can be reached on (571) 272-2398. The fax phone number for this Group is (703) 872-9306.

Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to [allyson.trail@uspto.gov].

All Internet e-mail communications will be made of record in the application file. PTO employees do not engage in Internet communications where there exists a possibility that sensitive information could be identified or exchanged unless the record includes a properly signed express waiver of the confidentiality requirements of 35 U.S.C. 122. This is more clearly set forth in the Interim Internet Usage Policy published in the Official Gazette of the Patent and Trademark on February 25, 1997 at 1195 OG 89.

Allyson N. Trail
Patent Examiner
Art Unit 2876
October 13, 2004

Jared J. Fureman
JARED J. FUREMAN
PRIMARY EXAMINER